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ABSTRACT

This learning module, which is intended for use in in-service training for vocational rehabilitation counselors, outlines strategies for maintaining appropriate client behaviors and facilitating their generalization to other environments. The information presented is relevant for existing behaviors as well as for behavior to be taught, increased, or reduced in the future. The first section defines the concepts of maintenance and generalization. The next section deals with the following aspects of maintenance: procedures for changing reinforcement schedules, methods of reducing reinforcement, ratio schedules of reinforcement, and interval schedules of reinforcement. The section on generalization covers ways of changing reinforcers, delaying reinforcers, training supervisors, and changing conditions. Two self-tests are also included. (MN)

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REHABILITATION ASSOCIATE TRAINING FOR EMPLOYED STAFF

Maintaining Behavior (RA-8)

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MAINTAINING BEHAVIOR

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NOTE: Scattered throughout this module are questions which review the main points of the material presented. Be sure to answer these questions only in the student workbook.

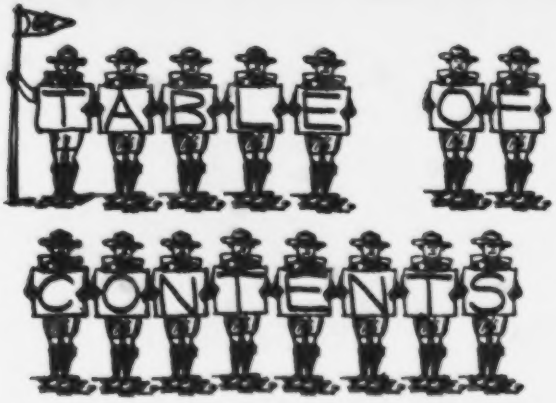
REHABILITATION ASSOCIATE TRAINING
FOR EMPLOYED STAFF

MODULE: RA-8 Maintaining Behavior

DESCRIPTORS: *Generalization, schedules of reinforcement, continuous reinforcement, intermittent reinforcement, ratio schedules, interval schedules, response patterns.*

OVERVIEW: Once new behaviors are taught and increased to adequate levels, they must be maintained. Service providers are "blessed" when clients perform given behaviors at appropriate levels. The trick, however, is to maintain this level of performance, whether in the workshop or natural environment

This module outlines strategies for maintaining appropriate client behaviors and facilitating their generalization to other environments. This information is relevant for existing behaviors as well as behavior to be taught/increased/reduced in the future.



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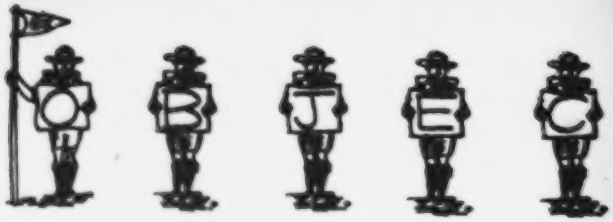


BEHAVIOR

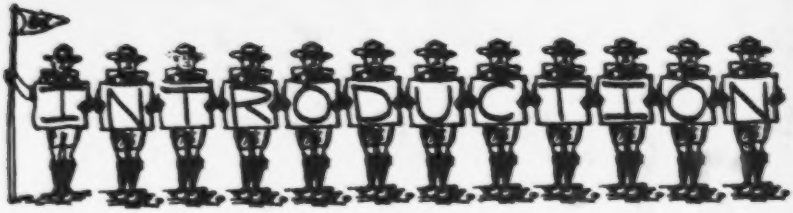
1 Identify schedules of reinforcement in rehabilitation situations and behavior patterns to expect in each.

2 Write maintenance and generalization plans for specific behaviors.

EVALUATION

1 Class Test. Will be given 5 behavioral incidents in which to identify the specific schedule and then list expected behavior pattern.

2 Class test. Will be given 2 situations for which to write plans.



Remember the FOUR situations teachers may have to deal with? They are

1 The client does the behavior too little.

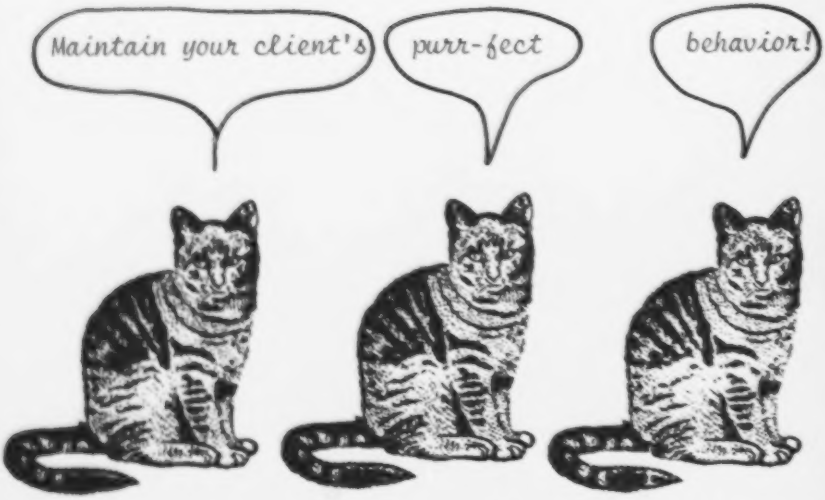
2 The client does the behavior at the correct level.

3 The client does the behavior too often.

4 The client never does the behavior.

As a teacher, you may encounter the case of a *"perfect client."* She does the behavior exactly right and exactly often enough. Sounds like your job is done, right? WRONG! Now you have to *provide for maintenance and generalization*.

Don't forget!


Maintain your client's
purr-fect
behavior!

What do you have to do after the client is perfect ?

Maintenance & Generalization

mean exactly what the words say. The teacher must set up a program to ensure *the continuation (maintenance) of the behavior* and to *be sure it will happen in the natural environment (generalization)*.

Generalization means the behavior continues in the natural environment!

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Define maintenance.

Define generalization.

BACKGROUND

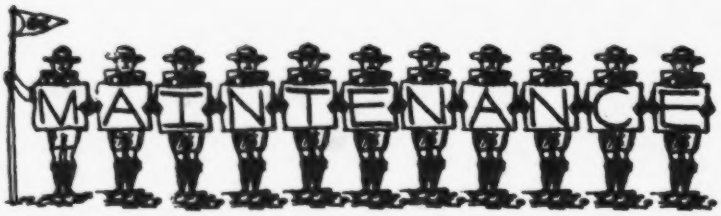
In order to understand the procedures for insuring maintenance and generalization, we need to review in brief two procedures which help bring behaviors to appropriate levels to begin with: *reinforcement* and *discriminative stimuli* (these are covered in greater detail in the modules *Teaching New Behavior*, *Increasing Behavior*, and *Reducing/Eliminating Behavior*.)

REINFORCEMENT

Reinforcement is the process of following a behavior with delivery of a stimulus that increases that behavior (a reinforcer). Reinforcement is used to teach behaviors by increasing other more appropriate behaviors. Reinforcement can be delivered continuously (CRF) which means after every appropriate response; or it can be delivered intermittently which means less than every response. The frequency at which reinforcement is delivered is called a schedule of reinforcement.

DISCRIMINATIVE STIMULI (S^D)

A discriminative stimulus cues a behavior which, if present, will be reinforced. Thus, discriminative stimuli tell clients which behaviors are appropriate.



To accomplish maintenance of a behavior, reinforcement has to be thinned from a continuous (CRF) schedule to an intermittent one. This means that after Susan has received reinforcement for every correct word read and is at criterion level, you should start to reinforce for approximately every 3rd, then 6th word correct, etc. There are three reasons to do this. One is that CRF reinforcement is *expensive in time and money (if tangibles are being used). It's intrusive and is not normal.*

The second is that *intermittent reinforcement maintains behavior better than CRF*. This makes sense if you think about it. If someone was reinforcing me every time I gave a correct answer and suddenly they discontinued that reinforcement, it would be fairly easy to tell that I was no longer being reinforced and I would probably stop answering very quickly.

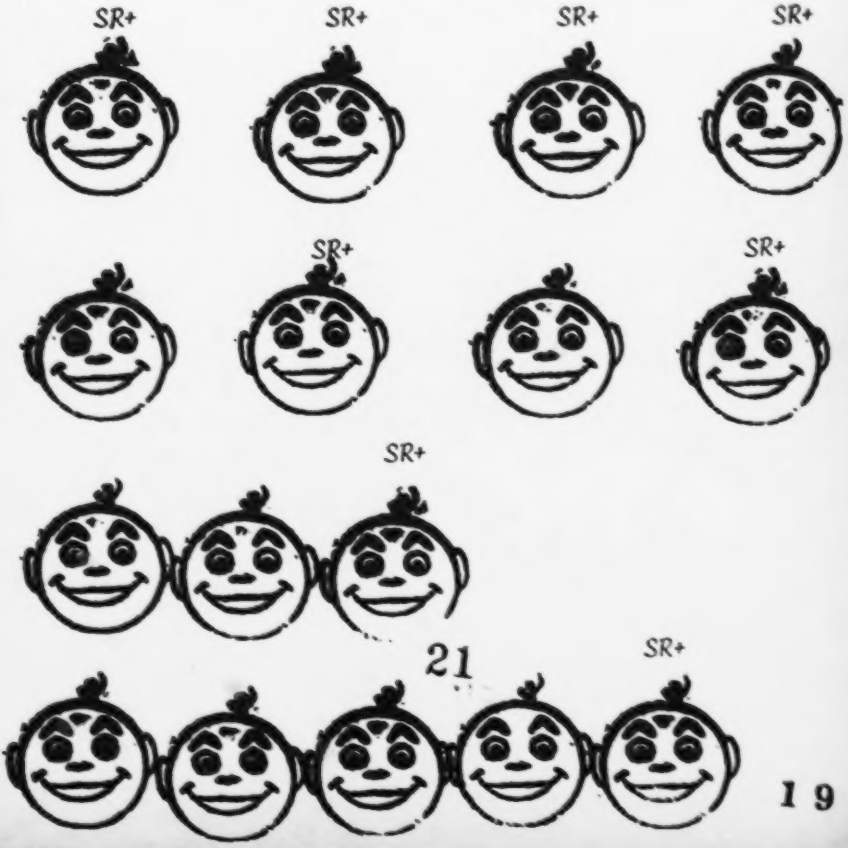
On the other hand, if someone was reinforcing me for every 5 correct answers, it might take me a longer time to discover that it wasn't just a fluke and I would keep answering longer, after the reinforcement had stopped.

The third is that using *a CRF schedule of reinforcement increases the chances of the client becoming tired of the consequence*. You can only eat so many M & M's before they no longer function as a reinforcer. If you require more responses and give the consequence less often, it will probably remain reinforcing for a longer period of time.

CRF is expensive, intrusive, and not normal!
It doesn't maintain behavior as well as intermittent reinforcement!
With CRF, the client may tire of the reinforcer!

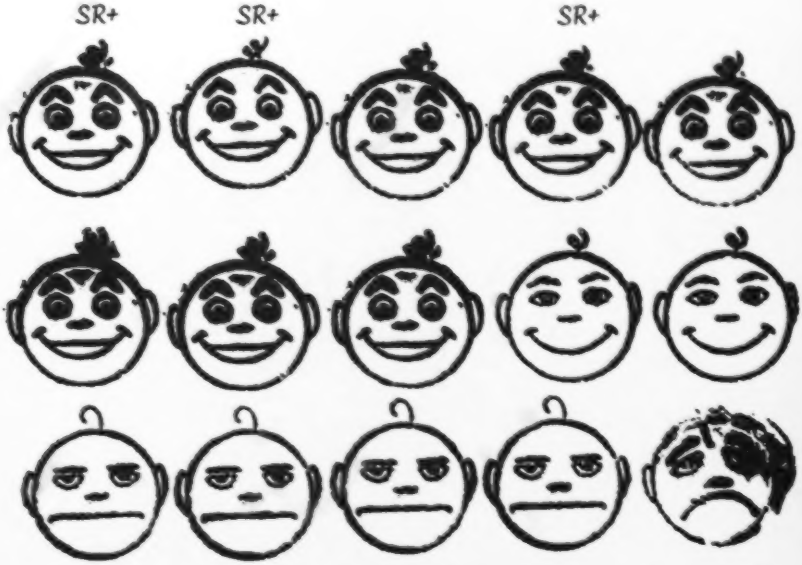
List 3 reasons why CRF reinforcement has to be discontinued.

The reduction of the number of times a response is reinforced is tricky. If reinforcement is suddenly discontinued, the behavior will usually fall apart. The client will stop responding and may start engaging in unexpected behaviors such as tantrumming and hitting. The way to avoid having the behavior fall apart and unexpected, undesirable behaviors occurring, is to *gradually decrease the amount of reinforcement*. This means we may go from a CRF schedule to reinforcing every other response, to every third, to every fifth, etc. in a slow, gradual systematic way until the schedule approaches that which maintains the behavior in the natural enivronment. For example, Jeff may need to earn a token for every board he saws at first. Then he may get reinforced for every 2, then 4, etc. until he gets a pay check at the end of the week like everyone else.



What is the best way to reduce the amount of reinforcement ?

You may ask how gradual? There is no set rule because every client is different. But, *by looking at the client's progress* (or lack of it) you should be able to tell whether your reduction is too abrupt. If a client stops responding, even though he is receiving a lot of reinforcement, you need to reduce the number of reinforcers that are being given. If a client's responding stops suddenly, the reduction in reinforcement was too abrupt. In that case, you would quickly increase the number of reinforcers given and hope the behavior will become established again. The data will tell the story.

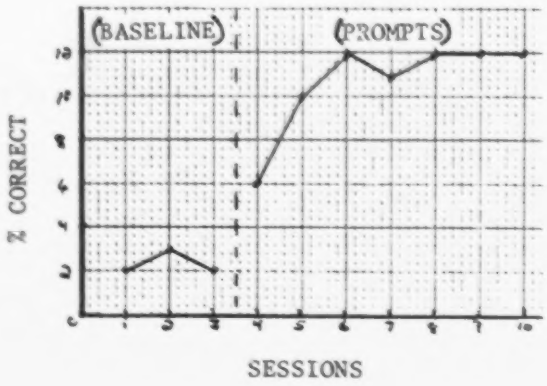


The DATA tell the story.

How do you know if you have reduced the reinforcement correctly?

Besides *making the change gradually*, the *use of discriminative stimuli* can make this change easier. Discriminative stimuli (S^D's) are cues or prompts that have been paired with the delivery of reinforcement and tell an individual when a behavior will be reinforced. The clock can signal when a break will take place, when the work day is over, and even the number of units that have to be completed within a certain time. A sign reminding someone to wash his hands can act as an S^D and maintain this behavior after it has been taught. These things need to be present when the behavior is being taught and reinforced, for them to become S^D's. So teach handwashing in the bathroom by the sign and the sign will become the S^D for the response.

Verbal prompts are also very effective in helping to maintain responding at a high level. An example of this is when a work supervisor tells a client that there are only ten more minutes until break time. The person may have been responding at a very slow rate or beginning to wander from the work station, but when the verbal cue was given, specifying that the end was in sight, responding was maintained. However, giving verbal cues like this are attention, and like any attention may act as a social reinforcer. So be careful. Reminding someone to go to work whenever he stops may increase stopping. Take your data so you really know what is happening.



List 2 ways to make the change to intermittent reinforcement easier.

Once you have decided a client is ready for the switch from CRF to intermittent reinforcement, you've provided some S^D's, and you understand the change has to be gradual; you have to decide exactly what type of intermittent reinforcement to use. There are four basic choices which involve decisions in two areas. First, you may decide to base reinforcement on the number of responses made. This is called a *ratio schedule*. This means you may reinforce after 4, 25, 100 or any number of responses. This choice of a ratio schedule means you have to have the personnel available to count responses.

What is a schedule based on responses called ?

If you decide on a ratio schedule, you still have another decision to make before you have a complete schedule. You can reinforce after a set number of responses like 2, 4, or 6. This is called *fixed ratio* (FR) and always has a number after it. For example, an FR6 would mean after every 6 correct responses the client would receive the reinforcer.

What is a schedule based on a set number of responses?

Another possibility is to reinforce based on responses, but to do it on the average number rather than a set number. This is called a *variable ratio* (VR) and also has a number with it. For example, a VR6 means reinforcement is given after an average of every 6 correct responses. It might be after 6, then 4, then 8 to achieve an average of 6.

What kind of schedule is based on average number of responses ?

If you choose to reinforce based on the passage of time, this is called an interval schedule. This means you reinforce the first correct response after the passage of a length of time.

If this length of time is always exactly the same, the schedule is called *fixed interval* (FI). It always has a time after the letters. For example, FI 2 min. means the first correct response after 2 minutes has passed will be reinforced.

Reinforcement of the first correct response after an exact length of time

is called

"Fixed Interval!"

What is a schedule based on an exact amount of time passing?

If the length of time is not always exactly the same, the schedule is called *variable interval* (VI). It also has a time after the letters (VI 2 min, VI 5 min). This time represents the *average* length of the intervals before reinforcement is available. Thus, variable interval differs from fixed interval in that in VI the intervals are not always exactly the same, and are represented by the <u>average</u> of the intervals. (Remember though, that the passage of time in intervals schedules does not result in reinforcement-there still needs to be the <u>response</u>.

Reinforcement of the 1st correct response after an average length of time

is called

"Variable Interval!"

What is a schedule based on an average amount of time ?

In order to define these schedules, you need to know the meanings of four words. They are

Interval (I) means time

Ratio (R) means responses

Variable (V) means average

Fixed (F) means set

If you know these words, you can correctly identify these schedules. Try it:

NAME	DEFINITION
FI	
VI	
VR	
FR	

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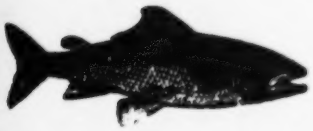
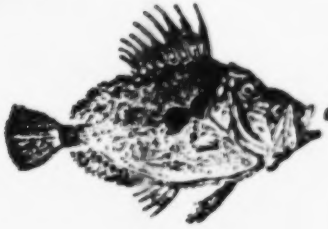
Each intermittent schedule produces a different pattern of responses. VI AND VR are the best schedules for maintaining a high, steady rate of responding.

What are the 2 best schedules for maintaining behavior ?

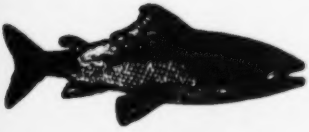
These schedules provide unpredictable reinforcement so clients will keep up a steady pace, because the next response might be the one that will be reinforced. These are also the most practical for you to use, since you are a supervisor of many clients. *A variable schedule translates into reinforcing every once in a while, or after some responses are made.*



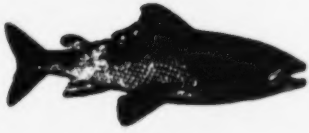
A variable schedule is practical for the supervisor



and unpredictable for the client!



The client maintains a steady rate,



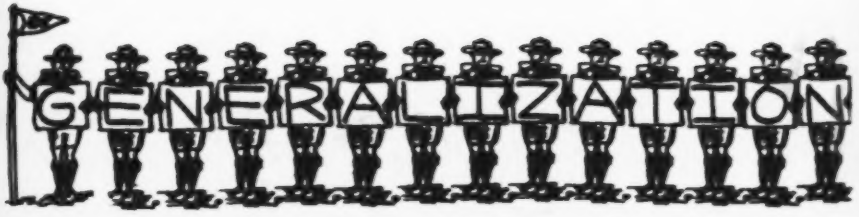
since any response

may be reinforced!

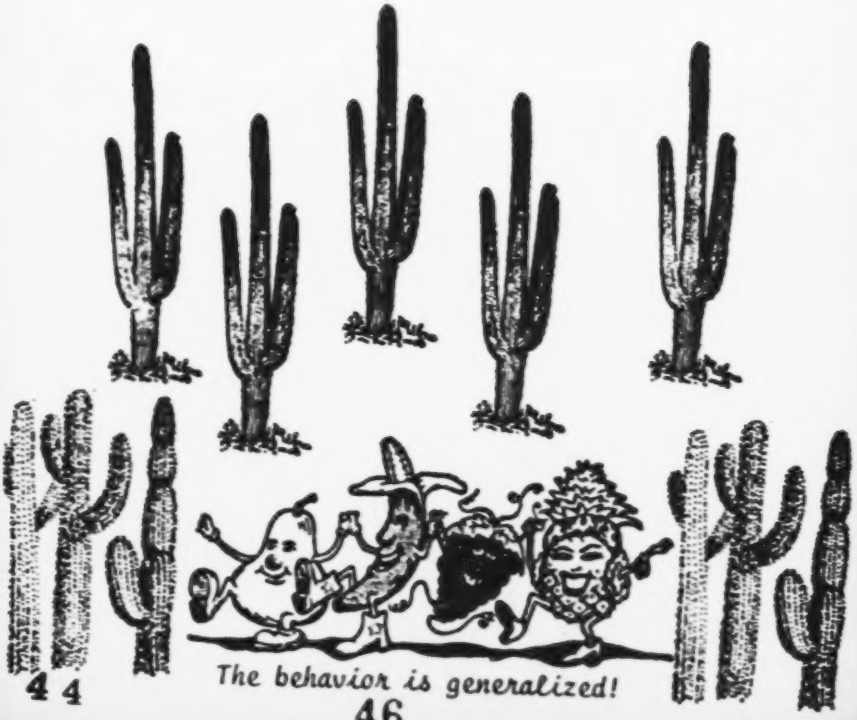
Why are VI & VR the best schedules for maintenance ?

FI and FR schedules produce *patterns of responding which include pauses*. A client getting 50¢ for every 100 envelopes stuffed will typically do 100 and rest, do 100 more and rest again. If this pause in the response pattern is O.K., you could choose this schedule; if it isn't, don't use it. FI schedules will produce patterns of responding which include a pause and then a group of responses near the end of the time, just before the reinforcement is due. So, if you plan to walk by the work line at 10:00 each day, you can expect your clients to be working from about 9:55 to 10:00 only. Again, if this is O.K., use it; if not, don't use it.

Describe the pattern of responses you can expect from FI or FR schedules.



After a behavior has reached the maintenance level or during this process, a generalization program may be started. This means *causing the behavior to happen in an environment other than the one in which it was taught.* Sometimes this is called transfer of training.



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The behavior is generalized!

Define generalization or transfer of training.

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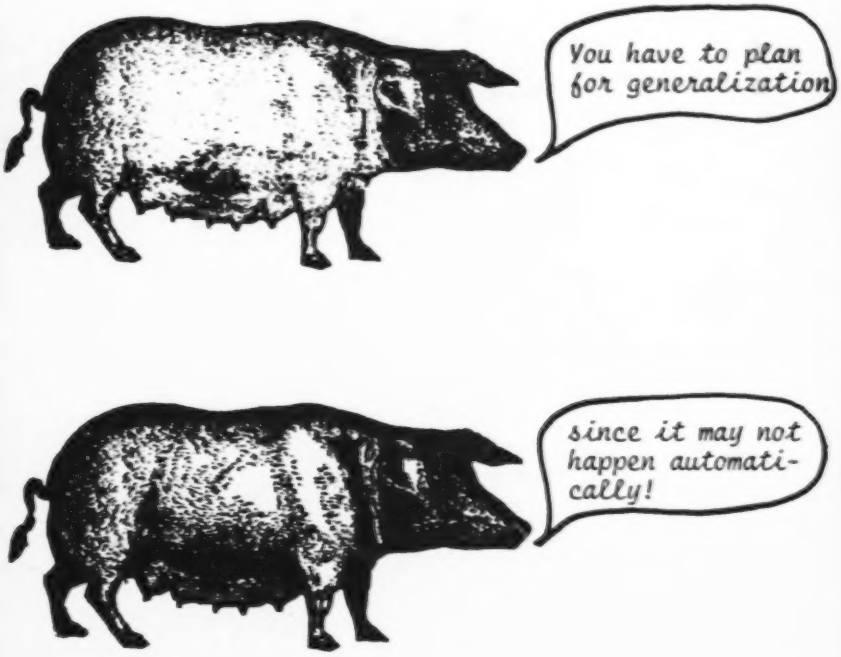
Of course the best policy is to teach a behavior in the natural setting using natural reinforcers, but this may not be possible. Tooth brushing should be taught in the bathroom after meals and before bed, but you may not have access to the client at these times. Clean fresh breath or fewer cavities may not maintain it for some people in the beginning. It is better to teach the skill in a training environment than not to teach it at all. But, how do you get it to happen in the natural environment? *You have to plan for it to happen*. This transfer will seldom, if ever, happen on its own. It is too important to be left to chance. It, in fact, may be the most important step in an entire teaching procedure. It really doesn't matter much if Mary can brush her teeth in the classroom when you tell her. What does matter is if she does it before she goes to bed at night.



How does transfer of training occur ?

There are several things you can do, but there has to be a program. It will not happen by itself. One thing to do is to *change the reinforcer to one that will maintain the behavior in the natural environment*. This can be done after, or during the change to an intermittent schedule. For example, if tokens are given CRF for steps completed on a housekeeping skill, praise would be given at the same time. The tokens could be faded out to an intermittent schedule, praise still given CRF, and then praise faded out. Eventually the whole chain could be maintained by occasional praise and the looks of the room when it was done. After proper dressing has been taught, control can be shifted to the reinforcer that maintains it for us--acceptance of our peer group. After proper requesting has been taught, it will be maintained by the natural reinforcer--usually getting what you want.

1

Change the reinforcer to maintain the behavior in the natural environment!

What is 1 way to help generalization happen ?

Besides *changing the actual reinforcer, you can delay the delivery of the reinforcer* to increase transfer of training. For example, if you count the number of tasks completed during a 2 hour period in the morning and give the reinforcement at the end of the day, the target behavior is more likely to happen all day than if the reinforcer is given at the end of the 2 hour period. Because it is unclear to the client exactly what time the behavior is being reinforced, he is more likely to do it all day. Remember this delay is recommended only when the behavior has been firmly established by a more immediate system.

Delay the delivery of the reinforcer.

Change the reinforcer.

What are 2 ways to help generalization happen?

In addition to changing the what and the when of the reinforcer, you can change the who by *teaching other people from the natural environment to reinforce the target behavior.* Parents, other staff and bus drivers, can all be taught to praise Sue's appropriate dressing. (*Just be sure there is something to maintain their praising behavior.*) The cook can reinforce appropriate eating, the maintenance people clean rooms or work space. The contractors of the sorting job can reinforce increased production.

Teach people in the natural environment to reinforce the behavior.

Delay reinforcement.

Change the reinforcer.

List
the third way
to help
transfer of
training
to occur.

Many times transfer to the desired environment does not occur because the behavior was taught only in one specific situation. A very specific set of circumstances produces the target behavior. To remedy this, *change the conditions of teaching*. The training can be done by a variety of teachers, in a variety of settings, and perhaps by a number of different methods using different materials.

Another method is to bring elements of the maintenance environment into the training situation or to shift the training into the maintenance situation. Again, this is recommended only after the behavior has been established. It is a way to accomplish transfer of training. After you have taught Joe to tell time, get another staff person to run the session and use several different clocks and watches. When Allen sorts bolts correctly, give him some other items to sort and have another staff person, in another room, do the supervising.

Change the conditions of teaching!

What is another way to cause transfer of training to occur ?

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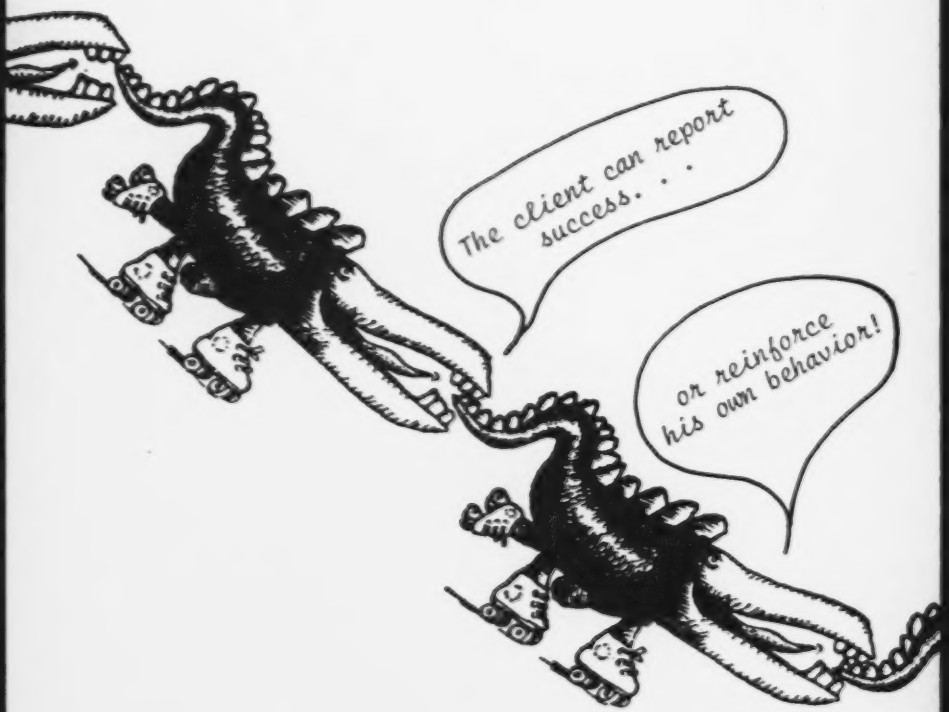
The last two ways to facilitate generalization have to do with teaching the client to cause the change. *The client can report success or record and reinforce his own behavior.* When Eric completes the required number of circuit boards he can tell you and receive a reinforcer. When Dan learns the entire dishwashing sequence, he can tell his mother. When Betty disassembles a meter correctly, she can tell the secretary of the agency. When Ross makes his bed at home, he can tell you. There is one danger here. You may want to check occasionally on this kind of reporting to make sure it is accurate. You want to be certain that you are reinforcing the client for doing the job, not just for saying they did.

Self-recording and self-control techniques can also help generalization to occur. This means the client can be taught to record and reinforce his own behavior.



What 2 things can the client be taught to facilitate transfer of training ?

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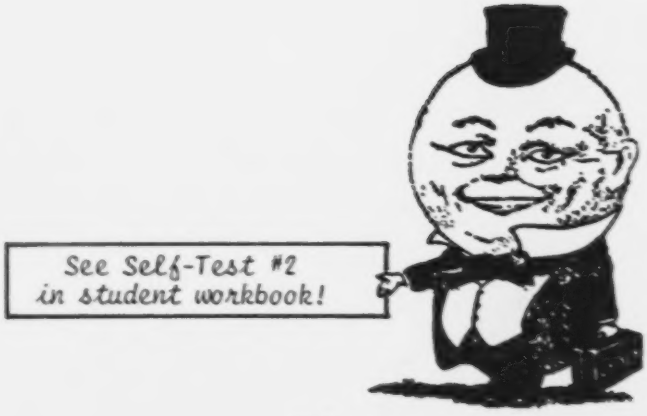
This chapter has been about what to do when you thought you were done. Remember, a behavior that only happens during a training session is essentially worthless. It has to be maintained and transferred to other settings. This won't happen unless you cause it to happen, so don't stop now!


See Self-Test #2
in student workbook!

Self-Test #1

1. While a client in the sheltered workshop, Bill was trained to assemble parts of some stero components. He was on a continuous reinforcement schedule, and his production rate was so high he was subsequently placed on a competitive job. However, his production rate did not maintain on the job even though he had adequate follow along services. Given the information above and what you know about maintaining behavior, what do you suppose the problem was?

2. How do you know if you are changing a reinforcement schedule too rapidly?

3. Which types of reinforcement schedules best maintain a high, steady rate of responding?

Self-Test #2

After each story, write the entire schedule name (i.e., VR4) and the expected pattern of behavior (i.e., a pause and then a burst of responses).

1. Whenever Herb cuts boards for pallets, he gets to sit in "his" chair.

2. Eric received one token for every 3 pop cans crushed.

3. You give David a pat on the back whenever you walk by and he is working. This happens about every 20 minutes.

4. About every 4th phone call is for you.

5. Alfred is a janitor for the WAC. The building is inspected and he is paid on Friday night.

Self-Test #2 (Con't.)

Write 2 maintenance and/or generalization procedures that could be used in the following situations.

6. Dick received 100% on all the pages of his change making workbook. He got a token for each page done correctly.

7. Gregg completes circuit boards at about 4 per hour when you are on duty, but does almost nothing when you're not at work. You praise on a VI 2 min. schedule.

8. You taught Jake to count change and now he is at upper level work station. You would like to reinforce his continued progress. You reinforced CRF when he was in your area.

9. Todd mops the dining room at criterion level when you are there to supervise. You praise on a VI 4 min. schedule.